

Differences in detection time of fat bloom formation on pralines

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Objectives

Development of fat bloom is a defining factor for the quality of pralines and affects the sensory characteristics of pralines. Fat bloom is caused by oil migration of the filling to the chocolate couverture of the praline.

- AIMS:
- ✓ Determination of the time when a panel detects differences between fresh and bloomed pralines
 - ✓ The relation between the measuring of fat bloom in instrumental analysis and sensory analysis

Materials & methods

PRODUCTS:

- Six variants of pralines were produced

| | | Variants | | | | | |
|----------------------|----------------|----------|----|----|----|----|----|
| | | V1 | V2 | V3 | V4 | V5 | V6 |
| Couverture chocolate | Milk chocolate | | | X | X | | |
| | Dark chocolate | X | X | | | X | X |
| Filling | Low hazelnut | X | | X | | | |
| | High hazelnut | | X | | X | | |
| | Low alcohol | | | | | X | |
| | High alcohol | | | | | | X |

- Two storage conditions:
20° → slow bloom
23° → fast bloom



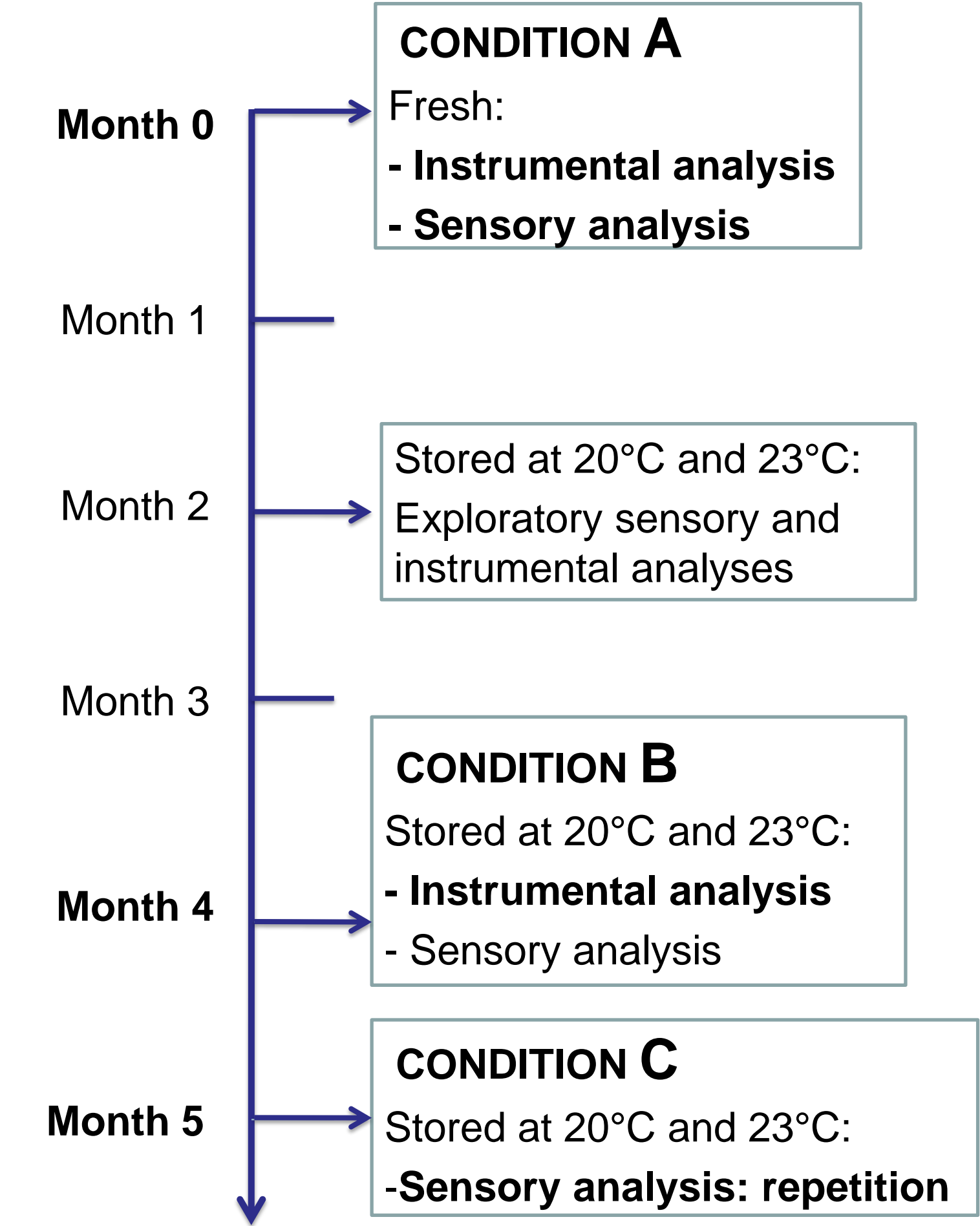
INSTRUMENTAL ANALYSIS

- DSC
- Texture measurement
- Colour measurement

SENSORY ANALYSIS:

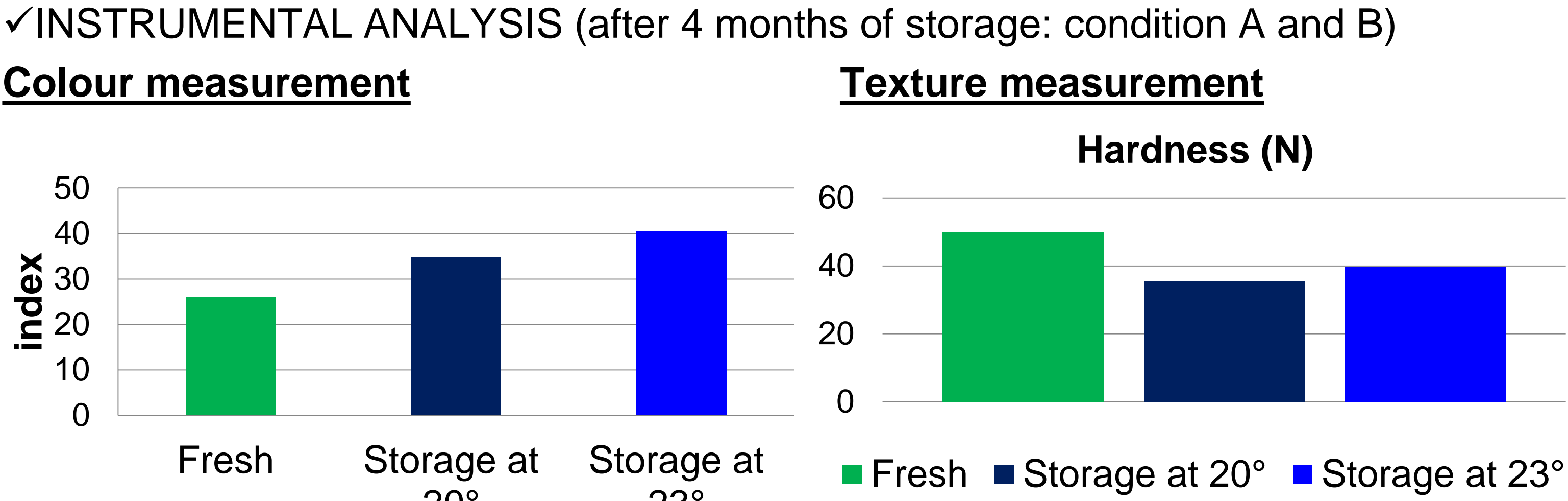
- Trained panel to evaluate the variants
- Quantitative Descriptive Analysis with 28 descriptors on appearance, aroma, texture and flavour

TIMETABLE ANALYSES

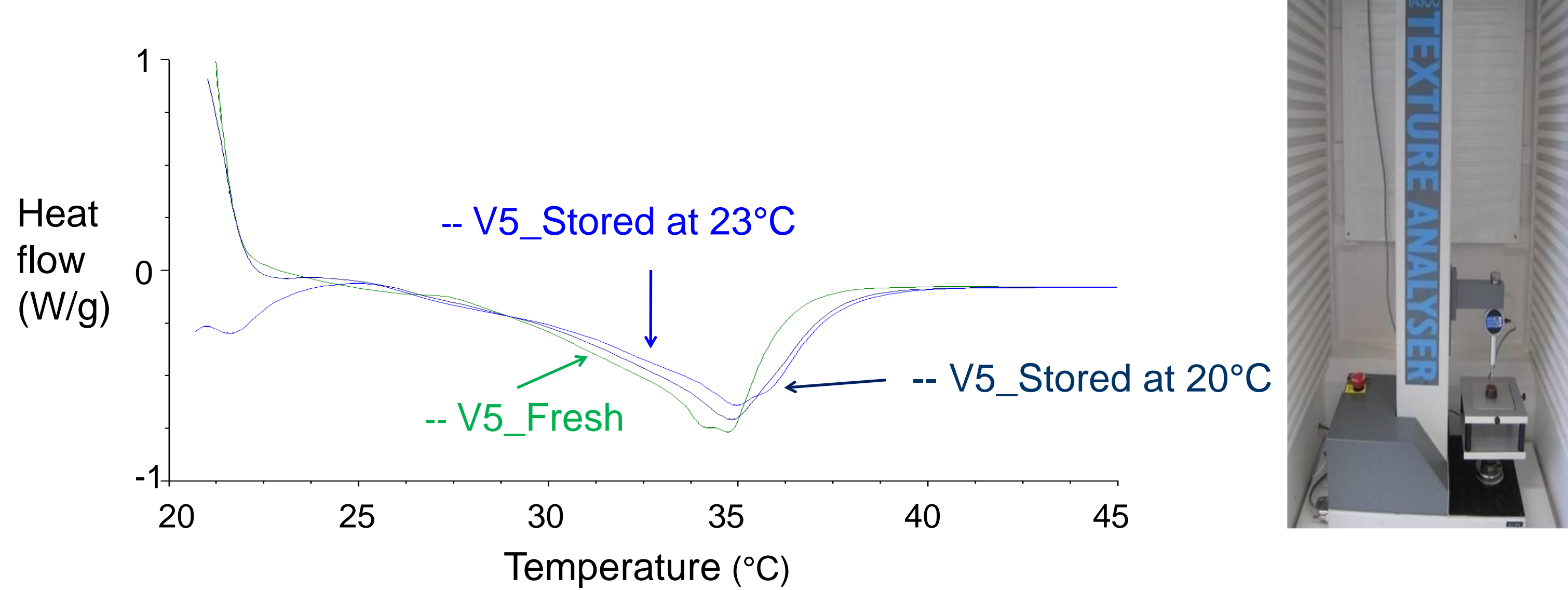


Results

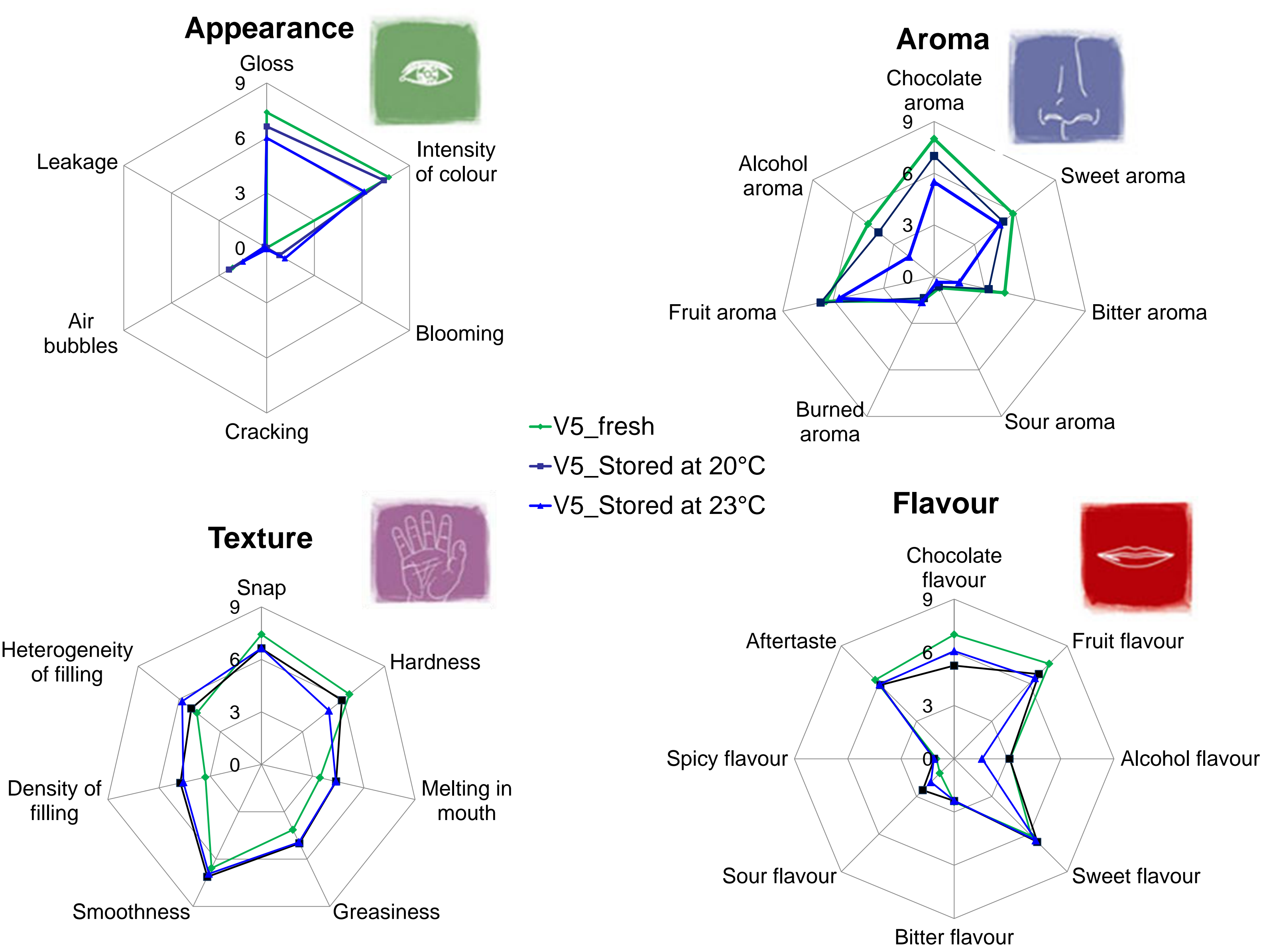
The results of variant 5 (dark chocolate and low alcoholic filling) are shown. The results on instrumental analysis were obtained after 4 months of storage. The sensory analysis gave results after 5 months of storage.



DSC – profile



✓ SENSORY ANALYSIS (after 5 months of storage: condition A and C)



Conclusions

Pralines **stored at 20°C and 23°C** are covered with a slight grey layer of fat bloom. The fat bloom is detected with **instrumental analysis after 4 months**. DSC and texture analyses indicate that oil migrates through the filling to the couverture chocolate and softens the chocolate.

The sensory evaluation shows differences in appearance, aroma, texture and flavour after storage of the pralines. When blooming occurs, the colour measurement gives a higher whiteness index and the panel detects a lower gloss and a less intense colour. This is combined with a less intense chocolate, alcohol and bitter aroma and flavour. The sour flavour increases during storage.

Texture measurement indicates that hardness decreases during storage which gives the same result as the sensory profile. The snap of the pralines is lower and the pralines are softer and more greasy after storage.

With **sensory analysis**, the differences were detected after **5 months of storage**, while with **instrumental analysis** fat bloom was observed after **4 months of storage**.

